SCOPE OF SERVICES
LAKE AQUATIC VEGETATION MANAGEMENT PLAN (AVMP)

LAKE AND RIVER ENHANCEMENT (LARE) PROGRAM
IDNR DIVISION OF FISH AND WILDLIFE

I. Project Purposes:

The LARE aquatic vegetation management program objectives are to:

1) Develop or maintain a stable, diverse aquatic plant community that supports a good balance of predator and prey fish and wildlife species, good water quality and is resistant to minor habitat disturbances and invasive species.
2) Direct efforts to prevent and/or control the negative impacts of aquatic invasive species.
3) Provide reasonable public recreational access while minimizing the negative impacts on plant, fish and wildlife resources.

The program recognizes that prevention strategies are the most cost-effective means of invasive species control, but that control of established populations of invasive species is also necessary.

Five-year Aquatic Vegetation Management Plans (AVMPs) are designed to develop lake-specific goals for the management of each water body that is eligible to receive state funds.

II. Project Tasks:

The scope of services outlined below should be considered a draft that is subject to revision prior to the final contract, based on discussion with the LARE staff and sponsoring lake association regarding cost-effectiveness of proposed services.

1. Conduct plant surveys

Conduct surveys using standard LARE program procedures found in the latest version of the IDNR Tier II Aquatic Vegetation Survey Protocol. The number and location of points may be adjusted for special projects, such as monitoring of ecozones or revegetation projects, as determined by LARE staff. All program guidance may be downloaded from the LARE online program manual at: www.in.gov/dnr/fishwild/3302.htm. The location of each survey point should be documented using a GPS unit with not more than 3m resolution.

A. Surveys for preparation of a five-year AVMP include:

a. Spring Tier II Survey (March 15-June 15)
b. Distribution map for each exotic species
c. Summer Tier II Survey (July 15-August 31)

B. Surveys for preparation of an AVMP Update include:

a. Pre-treatment distribution map for each exotic species (March 15-June 15)
    1. Spring Tier II Survey (March15-June 15) may be required
b. Treatment map with the herbicide(s) and acreage (required for permit)
c. Post-treatment Tier II Survey (July 15-August 31)

The contractor must notify the LARE biologist of scheduled survey dates at least one week in advance. The contractor must be prepared within two weeks of conducting any survey to provide field data to the DNR upon request. Where the herbicide contractor differs from the planning contractor, the planning contractor must provide all necessary information in a timely fashion to facilitate proper herbicide treatment.

2. Facilitate a public meeting

Facilitate at least one public meeting to present the results of plant management activities, describe the management alternatives for the following season, present the recommended management strategy, answer questions and obtain input from the public. A standardized public opinion survey is available from LARE staff and should be distributed to all participants for completion and collection at the meeting for the development of the five-year AVMP. Document meeting attendance, minutes, and public comments as an appendix to the study. The public meeting may be held anytime during the summer or early fall, to maximize attendance, and must be completed prior to the fall permit meeting. The LARE biologist must be notified at least two weeks in advance with the meeting date and location. Advance publicity such as posting flyers in a visible location (clubhouse door or a local bait shop) and publication in the association newsletter or local newspaper is required.

3. Fall permit meeting

To facilitate preparation of the draft report, permit application, and budgets for future grant awards, a meeting between a representative of the local sponsor organization, contractor(s), LARE staff, and other agency staff will be held to discuss results of the surveys and plant management recommendations for the upcoming year. It is the responsibility of the contractor(s) to work with DNR staff to schedule the permit meeting in the late fall (typically in October). These meetings are open to all contractors and nonresidents or representatives from other lakes that may have a particular interest in the permitted actions.

4. Prepare the Aquatic Vegetation Management Five-Year Plan or Annual Update

An Aquatic Vegetation Management Five-Year Plan is required in order to establish eligibility for LARE funding. In subsequent years, an Annual Update should be completed to maintain eligibility. Checklists of the minimum required elements used by agency staff to review the documents are provided in Appendix I and II. ***Permit applications and budget estimates for grant application purposes must be filled out completely and included in the DRAFT document***.

III. Data Presentation:

1. Where practical, the data should be presented clearly and concisely in the form of graphs and tables. Use the standard IDNR formats for presenting Tier II data to facilitate comparisons of data across years and across lakes (see Appendices III-IV).

2. Raw data sheets must be included as an appendix to the report to aid in the review process and to guide sample site comparisons in future years.

3. Figures should be incorporated into the main body of the report and not presented as attachments at the end of the report.

4. Whenever possible, figures should be limited to 8 1/2" x 11" in size. In most cases, large-scale maps and photos are not necessary.

5. Present data in standard units for the industry in the United States. For example, treatment areas will be given as acreage and dosages in parts per million or billion. Similarly, use common names for species with scientific names in parentheses or include a reference table with all common and scientific names used in the document.

IV. Review Process

1. Two printed copies and one digital copy of the draft report along with a digital copy of all Tier II data collected (Excel format) must be provided to the LARE program office for review by the LARE staff and pertinent agencies by **December 1**. The LARE staff will forward one hard copy for review to the District Fisheries Biologist. It is the responsibility of the contractor to provide additional copies directly to the local sponsor at their request.

2. The title of the draft report should refer to the report as a "draft" version and must include the lake name and county(s). Additionally, each page of the draft report, including figures, should be labeled "Draft - Subject to Revision."

3. LARE staff will compile and send agency comments on the draft report to the contractor by **February 1**. Checklists for review are included in Appendices I-II.

4. Upon addressing the review comments, two printed copies of the complete final report should be provided to the LARE office, along with a single electronic file, by **March 1**.

5. Both the draft and final reports should be reproduced with double-sided pages on three-hole punch paper. Do not submit bound copies of the reports, as they will be filed in 3-ring binders.

6. *Note that the draft and final reports will be posted on the LARE website for public comment.* Follow these guidelines for electronic copies:
    a) Electronic file names must follow this protocol:

Draft_Name_Lake_Name_County_AVMP_Update_Month_Year.pdf

b) All electronic copies must contain the complete digital copy of the full report including appendices, figures, maps and photos in either Microsoft Word© or Adobe PDF© format as a single electronic file. Do not prepare multiple files that need to be merged into one file for web posting.
c) Keep file sizes as small as possible to facilitate email exchange and downloading by adjusting pixel size on graphics, compressing photos, or exporting GIS files to pdf or jpeg formats.

Appendix I. Checklist for Review of LARE Aquatic Vegetation Management Five-Year Plan

The following is a checklist of the minimum elements required in the development of an aquatic plant management plan in order to establish eligibility for LARE funding.

A. Title Page
- ☐ Title includes name of lake, county, and year that surveys were conducted
- ☐ Title page provides name of company, indicates if draft, and date submitted
- ☐ Include the five-year period for which the plan is in effect (current surveying year to five years out)

B. Executive Summary
- ☐ Provides clear and concise overview as a stand-alone summary, no more than two pages

C. Table of Contents
- ☐ Complete and accurate

D. Watershed and Water Body Characteristics
- ☐ Water body characteristics – include any particular aspects that may affect plant growth and management, such as surface acreage, retention time, lakeshore or watershed management, distribution of lake bed sediments, or currents.
- ☐ Watershed characteristics
- ☐ List of existing studies for the water body including fish surveys

E. Present Water Body Uses
- ☐ Identify present water body uses
- ☐ Map displaying priority uses for activities and important habitat areas
- ☐ Summarize available water quality data

F. Problem Statement and Management History
- ☐ Realistic statement of the limitations imposed on lake uses and ecology
- ☐ Vegetation management activities performed on the water body over the past ten years. Present treatment history in table format, including species, acres treated, chemical and concentration used, and associated outcomes.

G. Characterize Aquatic Plant Community

<u>Tier II Survey Methods:</u>
- ☐ Reference methods used and reasons for any deviations from protocol, do not describe methods in detail
- ☐ Sampling points properly distributed throughout littoral zone, include map displaying points
- ☐ Conducted within designated seasonal sampling window

<u>Tier II Survey Results:</u>
- ☐ Include copy of field datasheets in appendix, with lat/long coordinates of sampling points
- ☐ Report Secchi depth and relationship to historical water quality trends
- ☐ Present results using DNR table format, divided by 5 ft. contour intervals
- ☐ List T&E species found in the lake(s) as documented by the Indiana Natural Heritage database
- ☐ Document the collection of any T&E species during the survey
- ☐ Document plant trends (species richness, frequency of occurrence, etc). Use standard format for multi-year data presentation
- ☐ Provide map(s) showing Tier II points where targeted exotic species were found, and outlining distinct beds of those species. Present details for each distinct bed in a table format including average depth and acreage

H. Public Involvement
- ☐ Identify interested parties (lake user groups, local government, state and federal agencies)
- ☐ Meeting scheduled within the timeframe specified by LARE protocol (summer/fall)

- ☐ Document and summarize public meeting (date, attendance, comments, etc)
- ☐ Present results of public survey and implications for aquatic plant management
- ☐ Recommend methods to keep the public informed of plans for aquatic vegetation management

I. Objectives

- ☐ In a bullet format outline specific management goals and objectives including target plant metrics
- ☐ Cover a period of not less than five years

J. Action Plan

- ☐ Identify potential management options (control and protection), including no action
- ☐ Select the option or combination of options that is most appropriate for each location or species. Herbicide treatments are prescribed according to the manufacturer's recommendations, unless the treatment has been approved by DNR staff in advance as an experimental protocol. Include details of selected herbicide treatment, including herbicide name and dosage as it relates to each distinct bed identified during the Tier II survey.
- ☐ Develop an action plan to achieve management goals and objectives
- ☐ Review permitting and acceptability of the plan to lake users
- ☐ Include an estimated budget to implement the plan (at least 5 years)
- ☐ Identify source(s) of future funding, indicating potential limits on state funding according to LARE policy
- ☐ Provide deadlines for actions by the association (e.g., submit permit, apply for funding, receive award notice, and send RFPs prepared by LARE staff, hire contractors)

K. Monitoring and Evaluation of Plan

- ☐ Outline monitoring strategy to gage success
- ☐ Provide timeline for regularly updating plan

L. References Cited

- ☐ All citations provided in standard bibliographic format

M. Forms

- ☐ Include all necessary Aquatic Vegetation Control Permit Applications complete and ready for signatures

N. Format

- ☐ Cite all tables and figures in the text.
- ☐ Both common and scientific plant names used in first occurrence, or listed in table
- ☐ Double-sided pages, 3-hole punched, with color figures as appropriate
- ☐ Include digital copy of all Tier II data collected (Excel format)
- ☐ Draft document: Two hard copies and one electronic copy
- ☐ Include the checklist of LARE staff review comments, annotated to show which changes were made and to explain any changes that were not made with submission of final copy

Appendix II. Checklist for Review of LARE AVMP Update

The following is a checklist of the minimum elements required in the development of an aquatic plant management plan update in order to maintain eligibility for LARE funding.

A. Title Page
- ☐ Title includes name of lake, county, and year that surveys were conducted for the update
- ☐ Title page provides name of company, indicates if draft, and date submitted

B. Executive Summary
- ☐ Provides clear and concise overview as a stand-alone summary, limited to one page

C. Problem Statement and Management History
- ☐ Realistic statement of the limitations imposed on lake uses and ecology
- ☐ In a bullet format outline specific management goals and objectives described in the original AVMP
- ☐ Update vegetation management activities performed on the water body. Present treatment history in table format that is updated annually, including species, acres treated, chemical and concentration used

D. Characterize Aquatic Plant Community
- ☐ Pre-treatment distribution map for each exotic species, can be combined with treatment map
- ☐ Treatment map(s) with date(s) of application identifying each specific treatment location. Present treatment details for each specific location in a table format including herbicide name(s), dosage(s), average depth(s), and acreage(s)

<u>Tier II Survey Methods:</u>
- ☐ Reference methods used and reasons for any deviations from protocol, do not describe methods in detail
- ☐ Use prior sampling points from 5-year plan or indicate reasons for any major deviations, include map displaying points
- ☐ Conducted within designated seasonal sampling window

<u>Tier II Survey Results:</u>
- ☐ Include copy of field datasheets in appendix, with lat/long coordinates of sampling points
- ☐ Present results using DNR table format, divided by 5 ft. contour intervals
- ☐ Provide map(s) showing Tier II points where targeted exotic species were found
- ☐ Document plant trends that are relevant to the objectives (species richness, frequency of occurrence, etc). Use standard format for multi-year data presentation

E. Aquatic Plant Management Discussion
- ☐ Briefly discuss the results of treatments on the plant community and whether the management strategy is achieving the desired objectives

F. Action Plan
- ☐ Develop a future management strategy to achieve objectives, including any adjustments based on previous results
- ☐ Describe future treatment recommendations that are most appropriate for each location or species. Treatments are prescribed according to the manufacturer's recommendations, unless the treatment has been approved by DNR staff in advance as an experimental protocol
- ☐ Include an estimated budget to implement the plan

G. Public Involvement
- ☐ Identify interested parties (lake user groups, local government, state and federal agencies)
- ☐ Meeting scheduled within the timeframe specified by LARE protocol (summer/fall)
- ☐ Document and summarize public meeting (date, attendance, comments, etc)
- ☐ Recommend methods to keep the public informed of plans for aquatic vegetation management

H. References Cited
- ☐ All citations provided in standard bibliographic format

I. Forms

- ☐ Include all necessary Aquatic Vegetation Control Permit Applications complete and ready for signatures

J. Format

- ☐ Cite all tables and figures in the text.
- ☐ Both common and scientific plant names used in first occurrence, or listed in table
- ☐ Double-sided pages, 3-hole punched, with color figures as appropriate
- ☐ Draft document: Two hard copies and one electronic copy
- ☐ Include digital copy of all Tier II data collected (Excel format)
- ☐ Include the checklist of LARE staff review comments, annotated to show which changes were made and to explain any changes that were not made with submission of final copy

Appendix III. Standard format for LARE AVMP Tier II single-year data presentation

Occurrence and abundance of submersed aquatic plants in Lake _____.							
County:		Sites with plants:			Mean species/site:		
Date:		Sites with native plants:			SE Mean species/site:		
Secchi (ft):		Number of species:			Mean native species/site:		
Maximum plant depth (ft):		Number of native species:			SE Mean natives/site:		
Trophic status:		Maximum species/site:			Species diversity:		
Total sites:					Native species diversity:		

All depths: 0 to 15 ft	Frequency of	Rake score frequency per species				
Species	Occurrence	0	1	3	5	Plant Dominance

Depth: 0 to 5 ft	Frequency of	Rake score frequency per species				
Species	Occurrence	0	1	3	5	Plant Dominance

Depth: 5 to 10 ft	Frequency of	Rake score frequency per species				
Species	Occurrence	0	1	3	5	Plant Dominance

Depth: 10 to 15 ft	Frequency of	Rake score frequency per species				
Species	Occurrence	0	1	3	5	Plant Dominance

Appendix IV. Standard format for LARE AVMP multi-year data presentation

Date									
Total Sites									
Secchi (ft)									
Number of Species									
Number of Native Species									
Species Diversity									
Native Species Diversity									
Mean Native Species/Site									
Species Frequency of Occurrence - All Depths: 0 to 15 ft									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species Frequency of Occurrence - Depth: 0 to 5 ft									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species Frequency of Occurrence - Depth: 5 to 10 ft									
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Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species x									
Species Frequency of Occurrence - Depth: 10 to 15 ft									
Species x									
Species x									
Species x									